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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WESTERBERG, NISSA M	

ART UNIT	PAPER NUMBER
1618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,910	CHAWLA ET AL.	
	Examiner	Art Unit	
	Nissa M. Westerberg	1618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 9, 20 - 27, 36, 42, 44, 45, 49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 9, 20 - 27, 36, 42, 44, 45, 49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the statement "the amount of buproprion hydrochloride may vary from between about 25 and about 500 mg w/w of the solid dosage form" found on p 4, ln 27 – 28 of the specification. Milligrams (mg) is an absolute amount but "w/w" indicates a ratio the weight of one component to the weight of another component or the weight of the entire tablet and therefore would be unitless.

Appropriate correction is required.

Claim Rejections - 35 USC § 112 1st Paragraph

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1 – 4, 6 – 9, 20 – 22, 24 – 27, 42, 44, 45 and 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. None of the open chain hydroxy acid derivatives other than gluconic acid

meet the written description provision of 35 USC § 112, first paragraph, due to lacking chemical structural information for what they are and chemical structures are highly variant and encompass a myriad of possibilities. The specification provides insufficient written description to support the genus of open chain hydroxy acid derivatives of glucono delta lactone encompassed by the claim, since there is no description of the structural relationship of these derivatives provided in the specification and Applicant has not provided a description as to how the base molecule may be changed while remaining a derivative.

Claim Rejections - 35 USC § 112 2nd Paragraph

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claims recited “between about 25 and about 500 mg w/w”. Milligrams (mg) which is an absolute amount but “w/w” indicates a ratio the weight of one component to the weight of another component or the weight of the entire tablet and therefore would be unitless. It is therefore unclear whether Applicant is claiming absolute amount or a weight/weight ratio of some sort, in which case to what the amount of bupropion hydrochloride is compared to is not given, causing further indefiniteness.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1 – 9, 20 –27, 36 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasir et al. (US 3,961,004; Nasir '004) in view of Baker et al. (EP 0467488) and Nasir et al. (J Pharm Sci 1977; Nasir 1977).

Nasir '004 discloses a method for producing pharmaceutical tablets using gluconolactone as the direct compression diluent (abstract). Anhydrous or spray dried lactose is commonly used in direct compression but a browning reaction can occur, which is more significant in the presence of basic compound such as amines (col 2, ln 46 – 52). D-gluconic acid delta lactone (GDL) is identified as the inventive diluent (col 4, ln 14 – 17) that can be present in amounts of up to 89% by weight of the total tablet with a range of active ingredient of 0.00% to 58% by weight of the total tablet (col 3, ln 35 – 41). Using gluconolactone avoids stratification of the powder because no great difference in the particle size of the various ingredients is involved (col 3, ln 65 – 68), it is compressible, has a low moisture content and overcomes the browning reaction (col 4, ln 2 – 8).The various ingredient powders were mixed to form a blend which was then formed into a solid dosage form (tablet; col 4, ln 63 – col 5, ln 15). The amount of GDL varies depending on the active ingredient used, and the amount of active ingredient can be greater than the amount GDL present. In Example VI (col 6), the amount of GDL present is 90% of the amount of sodium chloride present in the formulation.

Nasir '004 does not exemplify the inclusion of bupropion hydrochloride in the gluconolactone tablet or discuss the stability of the active ingredient.

Baker et al. discloses tablets comprising 100 mg of bupropion hydrochloride and 500 mg lactose (col 6, ln 55 – 58).

Nasir 1977 teaches aspirin in tablets made with glucono delta lactone (abbreviated "l"; p 370, col 2) is degraded less than in tablets made with other excipients such as anhydrous lactose or spray dried lactose, figure 5 – 9; 379, col 1, ¶ 3). It is postulated that the glucono delta lactone (GDL) takes up moisture for its own hydrolysis into gluconic acid, preventing hydrolysis of the aspirin (p 379, col 1, ¶ 5).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use GDL as the excipient in the bupropion hydrochloride formulation of Baker et al., given the improved properties of formulations made with GDL as compared to lactose taught by Nasir et al. '004. One of ordinary skill would be motivated and would have a reasonably expected success because Nasir et al. '004 teaches that replacement of lactose with GDL does not alter the ability to form tablets and results in a dosage form with improved properties when a dosage form containing a drug with an amine group, such as bupropion hydrochloride, is prepared.

An equilibrium exists between the glucono delta lactone ring form and the open chain hydroxy acid derivative gluconic acid. That, along with the teaching of Nasir 1977 that in the presence of moisture, the GDL in the dosage form converts to the open chain gluconic acid, indicates that gluconic acid will be present in the composition along with the GDL.

Nasir 1977 also teaches that hydrolyzing GDL into the gluconic acid improves the stability of the active ingredient. These compositions contain a greater percentage of

GDL than those disclosed by Applicant, which retain at least 80% of the bupropion potency after storage for three months at 40°C and 75% relative humidity and that increasing amounts of GDL improves the stability (table 1, p 9 of the instant specification).

10. Claims 1 – 3, 6 – 9, 20 – 22, 25 – 27, 36, 42, 44 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasir '004, Baker et al. and Nasir 1977 as applied to claims 1 – 3, 6 – 9, 20 – 22, 25 – 27, and 36 above, and further in view of McCullough et al. (US 2001/0011103).

Nasir '004 and Baker et al. disclose a method of making a solid dosage form and a solid dosage form comprising GDL and bupropion hydrochloride.

None of the references disclose the oral administration of the dosage form.

McCullough et al. discloses a composition comprising bupropion for treating nicotine addiction (abstract). Bupropion can also be used in the treatment of depression ¶ [0009]). Humans are identified as subjects to be treated for nicotine addiction (¶ [0036]) by an oral administration route (¶ [0057]).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to orally administer an oral solid dosage form such as a tablet comprising bupropion hydrochloride and GDL as taught by Nasir '004, Baker et al. and Nasir 1977 to human for the treatment of either or both of depression and nicotine addiction.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nissa M. Westerberg whose telephone number is (571)270-3532. The examiner can normally be reached on M - F, 8 a.m. - 4 p.m. ET. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Hartley can be reached on (571) 272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jake M. Vu/
Primary Examiner, Art Unit 1618

NMW